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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,421	07/30/2003	Oskar Rapp	331.1047	7837

23280 7590 03/15/2005

DAVIDSON, DAVIDSON & KAPPEL, LLC
485 SEVENTH AVENUE, 14TH FLOOR
NEW YORK, NY 10018

EXAMINER

PATEL, VISHAL A

ART UNIT PAPER NUMBER

3676

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,421

Applicant(s)

RAPP ET AL.

Examiner

Vishal Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004 and 19 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/27/04 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-21 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, How can a lip seal have a shaft having an outer surface?

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11, 13, 15-17, 20-21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero et al (US. 5,186,472) in view of Peisker et al (US. 4,501,431) in view of Hintenlang (US. 6,062,571) and in further view of Guth et al (US. 6,336,638).

Romero discloses a lip seal for sealing a gap between housing and a shaft (column 1, lines 5-10 or shaft is an inner casing 12). The lip seal having a support body (14), the support body having an annular part (36) radially to the shaft and a cylindrical part (part connected to static seal 18) running axially of the shaft and the annular part having two opposing sides (two sides of 36). The lip seal having a dynamic sealing element attached to the annular part and enclosing the annular part on the two opposing sides. The lip seal having a static sealing element (18) attached to the cylindrical part at a radial distance from the dynamic sealing element. The support body is made from a rigid material (support body is made from a rigid material). The rigid material is metal (14). There exist a distance between the static seal element and the dynamic sealing element. The static and dynamic sealing elements are connected to the supporting body by *vulcanization using a coupling agent (process limitation is given little patentable weight in an apparatus claim)*. The static and dynamic sealing elements are made of material. A shaft (shaft not shown that has 28 mounted to) having an outer surface.

The dynamic sealing element receives a lip shape during sliding of the seal onto the shaft (lip 48 or 42). The dynamic sealing element has a lip enclosing the shaft (either of lips 48 or 42) and the lip having a lip surface facing the shaft. The dynamic sealing element has a lip edge with a barrier feature (end of lips 48 or 42). The dynamic sealing element has a lip curved towards an environment or towards a sealed-off space (curved portion of lip 42 or 48).

The static sealing element has an outside surface that is corrugated (corrugations on outside surface of 18).

Method of manufacturing having the steps of fastening the dynamic sealing element to the annular part and enclosing the annular part on the two opposing sides at a fastening point

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(fastening point is the end of 36 where 40 starts) and positioning the static sealing element on the cylindrical part at a radial distance from the dynamic sealing element.

Method of sealing having the steps of contacting the housing with the static sealing element (tight seal provided by the static sealing element with a housing, column 3, lines 55-59) and contacting the shaft with the dynamic sealing element (contacting inner casing, see below paragraph for the dynamic sealing element directly contacting the shaft).

Romero discloses the invention substantially as claimed above but fails to disclose that the dynamic sealing element directly contacts the outer surface of the shaft, the lip has openings on the lip surface for return delivery of a medium to be sealed off and the openings are screw-shaped openings or single-threaded or multiple threaded. Peisker discloses a dynamic sealing element having lip (lip having 48) having openings (48) on a lip surface for return delivery of a medium to be sealed off, the openings can be any of screw-shaped openings or single-thread or multiple threaded and the dynamic lip directly contacts an outer surface (surface 82) of a shaft (figure 12) or contacts a casing that is mounted on the shaft (figure 13). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the dynamic sealing element and the lip surface of Romero to have the dynamic sealing element to directly contact the shaft and to have openings as taught by Peisker, since having a dynamic sealing element to directly contact an outer surface of a shaft or a casing that is mounted on the shaft is considered to be art equivalent (figures 12 and 13 of Peisker) and to provide return delivery of medium to be sealed-off and provide hydrodynamic pumping elements (column 5, lines 13-15 of Peisket).

Romero and Peisker disclose the invention substantially as claimed above but fail to disclose that the static sealing element and the dynamic sealing element are made of different material. Hintenlang teaches that a lip seal having a dynamic sealing element (1) and a static sealing element (2), where the dynamic sealing element and the static element are made of different material or same material (column 1, line 63 to column 2, line 6) and since the material is different the color of the material will be different. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the material of the static and the dynamic sealing elements of Romero and Peisker to be made from different material as taught by Hintenlang, since choosing a particular material for static and dynamic sealing elements is advantageous in that it allows for the optimization of the choice of material for each seal in dependence upon the specific application at hand (column 1, lines 63-67 of Hintenlang).

Romero, Peisker and Hintenlang disclose the invention substantially as claimed above but fail to disclose that the second material has a higher thermal stability than the first material. Guth discloses a static seal made of a first material (elastomeric material) and a dynamic seal made of a second material (the second material that has a higher thermal stability than the first material because the second material is PTFE). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the dynamic seal of Romero, Peisker and Hintenlang to be formed of PTFE as taught by Guth to provide a dynamic that is almost free of wear (column 2, lines 13-18 of Guth). Furthermore the static seal element and the dynamic seal element will have different color since one is made of elastomer and the other is made of fluoro-polymer.

Regarding claim 5: Romero, Peisker, Hintenlang and Guth discloses the claimed invention except that the radial distance between the static sealing element and the dynamic sealing element is at least 0.5mm. Discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the radial distance between the static sealing element and the dynamic sealing element to be at least 0.5mm as a matter of design choice.

6. Claim 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero (US. 4,936,591) in view of Peisker in view of Hintenlang and in further view of Guth.

Romero '591 discloses a lip seal (10) for sealing a gap between housing and a shaft (column 1, lines 5-10 or shaft is an inner casing 12). The lip seal having a support body (14), the support body having an annular part (36) radially to the shaft and a cylindrical part (part connected to static seal 18) running axially of the shaft and the annular part having two opposing sides (two sides of 36). The lip seal having a dynamic sealing element attached to the annular part and enclosing the annular part on the two opposing sides. The lip seal having a static sealing element (18) attached to the cylindrical part at a radial distance from the dynamic sealing element. The static sealing element has at least one of an end chamfer and a bottom chamfer on an outside surface (chambers above and below 32).

Romero discloses the invention substantially as claimed above but fails to disclose that the dynamic sealing element directly contacts the outer surface of the shaft. Peisker discloses a

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dynamic sealing element having lip (lip having 48) having openings (48) on a lip surface for return delivery of a medium to be sealed off, the openings can be any of screw-shaped openings or single-thread or multiple threaded and the dynamic lip directly contacts an outer surface (surface 82) of a shaft (figure 12) or contacts a casing that is mounted on the shaft (figure 13). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the dynamic sealing element and the lip surface of Romero to have the dynamic sealing element to directly contact the shaft and to have openings as taught by Peisker, since having a dynamic sealing element to directly contact an outer surface of a shaft or a casing that is mounted on the shaft is considered to be art equivalent (figures 12 and 13 of Peisker).

Romero '591 and Peisker discloses the invention substantially as claimed above but fails to disclose that the static sealing element and the dynamic sealing element are made of different material. Hintenlang teaches that a lip seal having a dynamic sealing element (1) and a static sealing element (2), where the dynamic sealing element and the static element are made of different material or same material (column 1, line 63 to column 2, line 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the material of the static and the dynamic sealing elements of Romero to be made from different material as taught by Hintenlang, since choosing a particular material for static and dynamic sealing elements is advantageous in that it allows for the optimization of the choice of material for each seal in dependence upon the specific application at hand (column 1, lines 63-67 of Hintenlang).

Romero '591 and Hintenlang disclose the invention substantially as claimed above but fail to disclose that the second material has a higher thermal stability than the first material.

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Guth discloses a static seal made of a first material (elastomeric material) and a dynamic seal made of a second material (the second material that has a higher thermal stability than the first material because the second material is PTFE). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the dynamic seal of Romero and Hintenlang to be formed of PTFE as taught by Guth to provide a dynamic that is almost free of wear (column 2, lines 13-18 of Guth).

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romero, Peisker, Hintenlang and Guth as applied to claim 1 in paragraph 5, and further in view of Besson et al (US. 6,401,843).

Romero, Peisker, Hintenlang and Guth disclose the invention substantially as claimed above but fail to disclose that a sensor attached to the housing and a sensor wheel or a multi-pole wheel on the shaft interacting with the sensor. Besson teaches to have a sensor (sensor 100 attached by lip to housing) attached to the housing and a sensor wheel on the shaft (sensor wheel 101). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the lip seal of Romero, Peisker, Hintenlang and Guth to have a sensor and a sensor as taught by Besson to provide detection of moving parts and possibly allow its rotational speed to be measured and/or controlled (column 4, lines 41-44 of Besson).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romero, Peisker, Hintenlang and Guth as applied to claim 1 above in paragraph 5, and further in view of Forschirm (US. 5,886,066).

Romero, Peisker, Hintenlang and Guth disclose the invention substantially as claimed above but fail to disclose that the dynamic sealing element includes waxes and paraffin.

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Forschirm discloses a PTFE material that includes waxes or paraffin to provide improved surface wear resistance and coefficients of friction (column 30-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the dynamic sealing element made of the second sealing material of Romero, Peisker, Hintenlang and Guth to have waxes or paraffin as taught by Forschirm, to provide improved wear resistance and coefficients of friction (abstract).

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romero, Peisker, Hintenlang and Guth as applied to claim 1 above in paragraph 5, and further in view of Johnston et al (US. 6,428,013).

Romero, Peisker, Hintenlang and Guth disclose the invention substantially as claimed above but fail to disclose that the static sealing element includes a thermoplastic. Johnston discloses a lip seal having a static sealing element made of elastomer or thermoplastic (column 3, lines 59-65) and a dynamic sealing lip. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the static sealing element of Romero, Hintenlang and Guth to be made of thermoplastic as taught by Johnston, since having a static sealing element made of elastomer or thermoplastic is considered to be art equivalent.

Response to Arguments

Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is (703) 308-8495. The examiner can normally be reached on Monday through Friday from 7:30 PM to 4:00 PM (EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford, can be reached on (703) 308-2978.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168. Technology Center 3600 Customer Service is available at 703-308-1113. General Customer Service numbers are at 800-786-9199 or 703-308-9000. Fax Customer Service is available at 703-872-9325.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to: 703-872-9326, for formal communications for entry before Final action: or,
703-872-9327, for formal communications for entry after Final action.

Hand-delivered responses should be brought to Crystal Park Five, 2451 Crystal Drive, Arlington, Virginia, Seventh Floor (Receptionist suite adjacent to the elevator lobby).

VP
March 8, 2005

A handwritten signature in black ink, appearing to read "Vishal Patel", with a stylized flourish at the end.

Vishal Patel
Patent Examiner
Tech. Center 3600